

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al (PGPUB-No: 2002/0044531).in view of An et al. (PGPUB-No: 2002/0002709).

### **Examiner Notes**

3. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

**Regarding claim 1**, Cooper et al. teach a method of measuring transmission quality of multimedia data, comprising the steps of: (a) transmitting multimedia data through a channel by a transmitter (paragraph 16, see figure 3); (c)

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estimating the received data at the receiver using the error information by the transmitter (paragraphs 28, 58) and (d) Measuring the transmission quality of the received data by comparing the estimated received data with reference data by the transmitter (paragraphs 51-53) except for (b) transmitting information on errors occurring during multimedia data transmission to the transmitter through a return channel by a receiver receiving the multimedia data from the transmitter. However, An teach (b) transmitting information on errors occurring during multimedia data transmission to the transmitter through a return channel by a receiver receiving the multimedia data from the transmitter (paragraphs 46, 53, 58). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper to include receiver receiving the multimedia data from the transmitter as taught by An in order to provide a receiver for receiving the broadcast applying signal from the broadcasting control center thereby controlling the broadcasting time of the detected multimedia Data that's developed high quality service for customer.

**Regarding claim 2**, Cooper et al. teach the method according to claim 1, wherein the step (b) is performed in such a way as to transmit the error information to the transmitter through the return channel only except for when a transmission error of the multimedia data is detected. However An teach a transmission error of the multimedia data is detected (paragraphs 46, 58). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper to include the multimedia data

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is detected as taught by An in order to provide a converter for converting digital from the database to analog multimedia data ,thereby improve more customer services .

**Regarding claim 3**, Cooper et al. further teach the method according to claim 1, wherein the step (b) comprises the step of compensating errors by applying an error concealment technique to the received multimedia data (paragraphs 5, 15, and 47).

**Regarding claim 4**, Cooper et al. further teach the method according to claim 3, wherein the step (b) is performed in such a way as to transmit information on the employed error concealment technique and error information to the transmitter through the return channel (paragraph 46-49, see figure 4).

**Regarding claim 5**, Cooper et al. further teach The method according to claim 1, wherein the step (c) is performed in such a way as to estimate the received data using the error information, which is returned from the receiver, and the transmitted multimedia data (paragraphs 5, 15, 29).

**Regarding claim 7**, Cooper et al. teach the method according to claim 1, wherein the reference data is the transmitted multimedia data (paragraphs 2, 29).

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4. Claims 6, 8, 9, 11-19, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al (PGPUB-No: 2002/0044531) and An (PGUB No: 2002/0002709) in view of An et al. (PGPUB-No: 2002/0002709).

**Regarding claims 6, 8,** Cooper and An et al. teach The method according to claim 5, wherein: at the step (a), except for the transmitter encodes the multimedia data and transmits the encoded multimedia data through the channel; and at the step (c), the transmitted multimedia data is obtained by decoding the encoded multimedia data . However Saunders et al. (Patent No: 6351733) teach transmitter encodes the multimedia data and transmits the encoded multimedia data through the channel; and at the step (c), the transmitted multimedia data is obtained by decoding the encoded multimedia data (column 14, lines 10-25, figure 5) . Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper and An to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 9,** Cooper and An et al. teach the method according to claim 1, wherein the step (d) is performed in such a way as to estimate the transmission quality by using any one of a full-reference method, a reduced-reference method, and a no reference method (paragraphs 47, 50, , see figure 4). Therefore, it would have been obvious to one of ordinary skills in the art at the time of

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invention to modify the method of Cooper and An to include full-reference method, a reduced-reference method, and a no reference as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services

**Regarding claim 11**, Cooper and An et al. teach the method according to claim 10, wherein the step (e) is performed in such a way as to perform at least one of operations of terminating video transmission, increasing the channel bandwidth, except for employing an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state. However Saunders et al. (Patent No: 6351733) teach an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state (column 2, lines 24-30, column 18, lines 28-46, column 19, lines 11-13, 22, 26). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper to include CODEC taught by Saunders in order to transmit two types of information: radio and metadata, thereby improve more customer services.

**Regarding claim 12**, An and Cooper teach An apparatus for measuring transmission quality of multimedia data, comprising: a transmitter transmitting multimedia data through a channel; and a receiver receiving the multimedia data,

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detecting errors, which occurs in the channel, from the multimedia data, and transmitting the information on detected errors to the transmitter through a return channel, wherein the transmitter comprises, an estimation unit estimating the received data received at the receiver using the returned error information, and an evaluation unit evaluating the transmission quality of the received data by comparing the estimated received data with reference data except for an encoding unit encoding source multimedia data to encoded multimedia data, However Saunders et al. (Patent No: 6351733) teach an encoding unit encoding source multimedia data to encoded multimedia data, (column 14, lines 10-25, figure 5) . Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of An and Cooper to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 13,** Cooper Further teach the apparatus according to claim 12, wherein the receiver transmits error information to the transmitter through the return channel only when an error occurs in the channel (paragraph 46-49, see figure 4).

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**Regarding claim 14,** An Further teach the apparatus according to claim 12, wherein the receiver includes means for compensating errors by applying an error concealment technique to the received multimedia data (paragraph 7, lines

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3-8).

**Regarding claim 15**, An Further teach the according to claim 14, wherein the receiver transmits information on the error concealment technique and the error information to the transmitter through the return channel (paragraphs 44, 49, 53).

**Regarding claim 16**, An Further teach apparatus according to claim 12, wherein the estimation unit estimates the received data using the returned error information and transmitted multimedia data (paragraph 144, 157).

**Regarding claim 17**, An and Cooper teach the apparatus according to claim 16, wherein the transmitter further comprises: except for a decoding unit decoding encoded multimedia data and outputting the transmitted multimedia data. However Saunders et al. (Patent No: 6351733) teach an encoding unit encoding source multimedia data to encoded multimedia data, (column 14, lines 10-25, figure 5). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of An and Cooper to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

**Regarding claim 18**, An Further teach the apparatus according to claim 12, wherein the reference data is the transmitted multimedia data (paragraphs 13,

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see figure 2, 3 and 5).

**Regarding claim 19**, Cooper Further teach the apparatus according to claim 12, wherein the evaluation unit estimates the transmission quality using any one of a full-reference method, a reduced-reference method, and a no reference method (paragraphs 47, 51-53)

**Regarding claim 22**, An and cooper teach the apparatus according to claim 20, wherein the encoding unit performs at least one of operations of applying an error correction technique and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality. However Saunders et al. (Patent No: 6351733) teach an error correction technique, and switching to another CODEC robust against channel errors depending on evaluation results of transmission quality so as to change the transmission state (column 2, lines 24-30, column 18, lines 28-46, column19, lines 11-13, 22, 26). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper to include CODEC as taught by Saunders in order to transmit two types of information: radio and metadata, thereby improve more customer services.

**Regarding Claim 24**, Cooper and An et al. teach an apparatus for measuring transmission quality of multimedia data, comprising: a transmitter transmitting multimedia data through a channel (paragraph 16, see figure 3); and a receiver



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receiving the multimedia data, detecting errors (paragraphs 28, 29, 35, 58), which occurs in the channel, from the multimedia data, and fail to teach extracting a set of parameters from a video segment which are affected by the errors the transmitter through a return channel, wherein the transmitter comprises, an encoding unit encoding source multimedia data to encoded multimedia data, and an evaluation unit evaluating the transmission quality of the received data by using the set of parameters and reference data. However Saunders et al. (Patent No: 6351733) teach an encoding unit encoding source multimedia data to encoded multimedia data, and an evaluation unit evaluating the transmission quality of the received data by using the set of parameters and reference data(column 14, lines 10-25, figure 5). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of An and Cooper to include decoding the encoded multimedia as taught by Saunders in order to provide signal independently adjusted by the user, thereby improve more customer services.

5. Claims 10, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al (PGPUB-No: 2002/0044531) and An (PGUB No: 2002/0002709) in view of Caviedes et al. (PGPUB-No: 2002/0002709).

**Regarding claim 10**, Cooper and An et al. teach the method according to claim 1, further comprising the step of, after the step (d): except for (e) selectively

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maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality. However Caviedes et al. (PGUB No:2004/0012645) teach ) selectively maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality (paragraphs 24, 40, 56). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper to include transmission quality as taught by Caviedes et al in order to provide clipping due to finite precision arithmetic, thereby improve more quality services.

**Regarding claim 20**, An and cooper teach The apparatus according to claim 12, wherein the transmitter further comprises: a control unit for selectively maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality. However Caviedes et al. (PGUB No:2004/0012645) teach selectively maintaining or changing a transmission state of the multimedia data through the channel depending on the evaluation result of transmission quality (paragraphs 24, 40, 56). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of An and Cooper to include transmission quality as taught by Caviedes et al in order to provide clipping due to finite precision arithmetic, thereby improve more quality services.

**Regarding claim 21**, An and cooper teach The apparatus according to claim 20,

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wherein the control unit performs except for at least one of operations of terminating video transmission and increasing the channel bandwidth, depending on evaluation results of transmission quality. However Caviedes et al. (PGUB No:2004/0012645) teach operations of terminating video transmission and increasing the channel bandwidth, depending on evaluation results of transmission quality (paragraph 2, 5,7, 10, see figure 1, 2). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of An and Cooper to include transmission quality as taught by Caviedes et al in order to provide clipping due to finite precision arithmetic, thereby improve high quality services.

6. Claim 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al (PGPUB-No: 2002/0044531) and An (PGUB No: 2002/0002709) in view of Kahan et al. (PGPUB-No: 2006/0110067).

**Regarding Claim 23**, Cooper and An et al teach that a method of measuring transmission quality of multimedia data, comprising the steps of: (a) transmitting multimedia data through a channel by a transmitter (paragraph 16, see figure 3); but fail to teach (b) transmitting a set of parameters extracted from a video segment which are affected by errors occurring during multimedia data transmission to the transmitter through a return channel by a receiver receiving the multimedia data from the transmitter(paragraphs 44, 46, 53, 58); but fail to teach (c) measuring the transmission quality of the received data by using the set of parameters and reference data by the transmitter . However Kahan teach

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measuring the transmission quality of the received data by using the set of parameters and reference data by the transmitter (paragraphs 9, 11, 14, see figure 1). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Cooper and An to include measuring the transmission quality as taught by Kahan in order to provide quality of a digital video media duplication or transmission for display thereby improve thigh quality signal.

### **Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure .

Any response to this Office Action should be **faxed** to (571) 273-8300 or **mailed to:**

Commissioner for patents  
P.O.Box1450  
Alexandria, VA 22313-1450

### **Hand-delivered responses should be brought to**

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adel Y. Youssef whose telephone number is 571-270-3525. The examiner can normally be reached on Monday to Thursday 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Le can be reached on 571-272-7891. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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